

01-096/RCE

REMARKS

Applicants note at the onset that the request for continued examination of this application was filed with a revised attorney docket number of 01-096/RCE, which replaced the original attorney docket number of 01-096. Applicants respectfully request that the examiner please have the attorney docket number corrected in the Patent Office systems to the revised attorney docket number of 01-096/RCE.

Claims 1-5 and 7-19 are in the case. Claims 1, 10 and 11 are rejected under 35 USC § 112, both first and second paragraph, but have been indicated to be allowable if rewritten to overcome the 35 USC § 112 rejections, for which indication the applicants thank the examiner. The drawings are objected to under 37 CFR 1.83(a). Claims 1, 10, and 11 and the specification have been amended. No new matter has been introduced by the amendments, which are supported by the disclosure of the original claims, drawings, and specification. Reconsideration and allowance of the claims are respectfully requested.

CLAIM REJECTIONS UNDER § 112

Claims 1, 10, and 11 are rejected under 35 USC § 112 first paragraph for the language “depositing *no more than about 20 angstroms* of the liner layer” (emphasis added). Claims 1, 10, and 11 have been amended by replacing “no more than about 20 angstroms” with “a portion.” Reconsideration and allowance of amended claims 1, 10, and 11 are hereby requested.

Claims 1, 10, and 11 are rejected under 35 USC § 112 first paragraph for the language “forming an isotropic plasma of hydrogen and nitrogen using a plasma source *disposed upstream from the deposition reactor and flowing the isotropic plasma into the deposition chamber*” (emphasis added). Claims 1, 10, and 11 have been amended. The amendments are supported in the specification at page 7, lines 18-24, which state, “Preferably, H₂N₂ gas 26, or NH₃ and N₂ gases 26 are excited by the microwave source 36 (Fig. 3A) or an inductive coupling source 38 (Fig. 3B) to form the plasma 46 upstream from the structure 10. The plasma 46 is made to flow toward the structure 10, which is mounted on the heated holder 32 in the vacuum chamber 28.” Thus, the claim more

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closely recites the language of the specification, stating that the plasma is formed upstream from the structure being formed. The location of the formation of the plasma is thus considered to be remote from the structure, and the plasma is caused to flow from its point of formation to a downstream point where the structure is disposed. Reconsideration and allowance of amended claims 1, 10, and 11 are requested.

Claims 1, 10, and 11 are rejected under 35 USC § 112 second paragraph for the language "using a plasma source disposed upstream from the deposition chamber." Claims 1, 10, and 11 have been amended. As explained at page 7, lines 18-24, given above, the plasma source is a microwave source or an inductive coupling source, which excites the hydrogen/nitrogen gas to create plasma. These plasma sources are located upstream from the integrated circuit structure, with plasma flowing from the plasma source to the structure. Reconsideration and allowance of amended claims 1, 10, and 11 are requested.

Claims 1, 10, and 11 are rejected under 35 USC § 112 second paragraph for the language "repeating ... until the layer is formed to a *desired thickness*" (emphasis added). Claims 1, 10, and 11 have been amended to remove this language. Reconsideration and allowance of amended claims 1, 10, and 11 are requested.

Claims 2-5, 7-9 and 12-19 depend from claims 1 and 11, and contain additional important aspects of the invention. Reconsideration and allowance of claims 2-5, 7-9 and 12-19 in light of the amendments to claims 1 and 11 are respectfully requested.

DRAWING OBJECTIONS

The drawings are objected to under 37 CFR 1.83(a) for failing to show the reference number 46 as described on page 7 lines 16-26 of the specification. Applicants direct the examiners attention to Fig. 1G, where reference number 46 is shown. The plasma 46 is described on page 7 lines 6-15, as amended to reference Fig. 1G. Reconsideration and withdrawal of the objection to the drawings are requested.

CONCLUSION

Applicants assert that the claims of the present application patentably define over the prior art made of record and not relied upon for the same reasons as given above.


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Applicants respectfully submit that a full and complete response to the office action is provided herein, and that the application is now fully in condition for allowance. Action in accordance therewith is respectfully requested.

In the event this response is not timely filed, applicants hereby petition for the appropriate extension of time and request that the fee for the extension be charged to deposit account 12-2355. If other fees are required by this amendment, such as fees for additional claims, such fees may be charged to deposit account 12-2252. Should the examiner require further clarification of the invention, it is requested that s/he contact the undersigned before issuing the next office action.

Sincerely,

LUEDEKA, NEELY & GRAHAM, P.C.

By: 

Rick Barnes, 39,596

2004.09.30